11. PROJECT WORK STRATEGIES AND PROCESSES

The Glovebox Excavator Method Project uses a coordinated project work strategy and process management approach. Existing administrative protocols and infrastructure are used wherever possible. This section describes the project work strategies and processes.

11.1 Project Management Strategy and Processes

The project management strategy ensures the successful completion of the Glovebox Excavator Method Project. It ensures that the project is conducted safely, efficiently, and cost-effectively.

This Environmental Restoration project complies with the requirements of PRD-4, "INEEL Project Management System Requirements." The project team is implementing these requirements through a graded application of the criteria in the following company plans, procedures, and guidelines:

- MCP-9106, "Management of INEEL Projects"
- GDE-70, "General Project Management Methods"
- GDE-51, "Construction Project Management Guide, for Construction Projects"
- PLN-694, "Environmental Restoration Project Management Plan, for Environmental Restoration (ER) and Decontamination and Decommissioning (D&D) Projects."
- PRD-6, "Environmental Restoration Project Management."

Project Work Strategies

- Describes how the project is managed through the project phases
- Ensures that the engineering design activities are performed in an uniform and consistent manner
- Provides the necessary guidance to acquire goods and services throughout the various project phases
- Considers the types of actions necessary to implement the competitive acquisition of the goods and services identified by the Acquisition Strategy and Plan
- Describes the strategies and processes for site utilities and site preparation; structural installation; and mechanical, electrical, and equipment installation
- Identifies the production of a plan to establish a baseline for the testing, transfer, and closeout of the project to ensure that all turnover/acceptance phases are completed in accordance with requirements.

The project team is implementing the project over four distinct phases: Preconceptual Planning, Conceptual Design, Project Execution, and Acceptance/Closeout. The following paragraphs describe the project management activities identified for each of the phases. The overall process is shown in Figure 11-1.

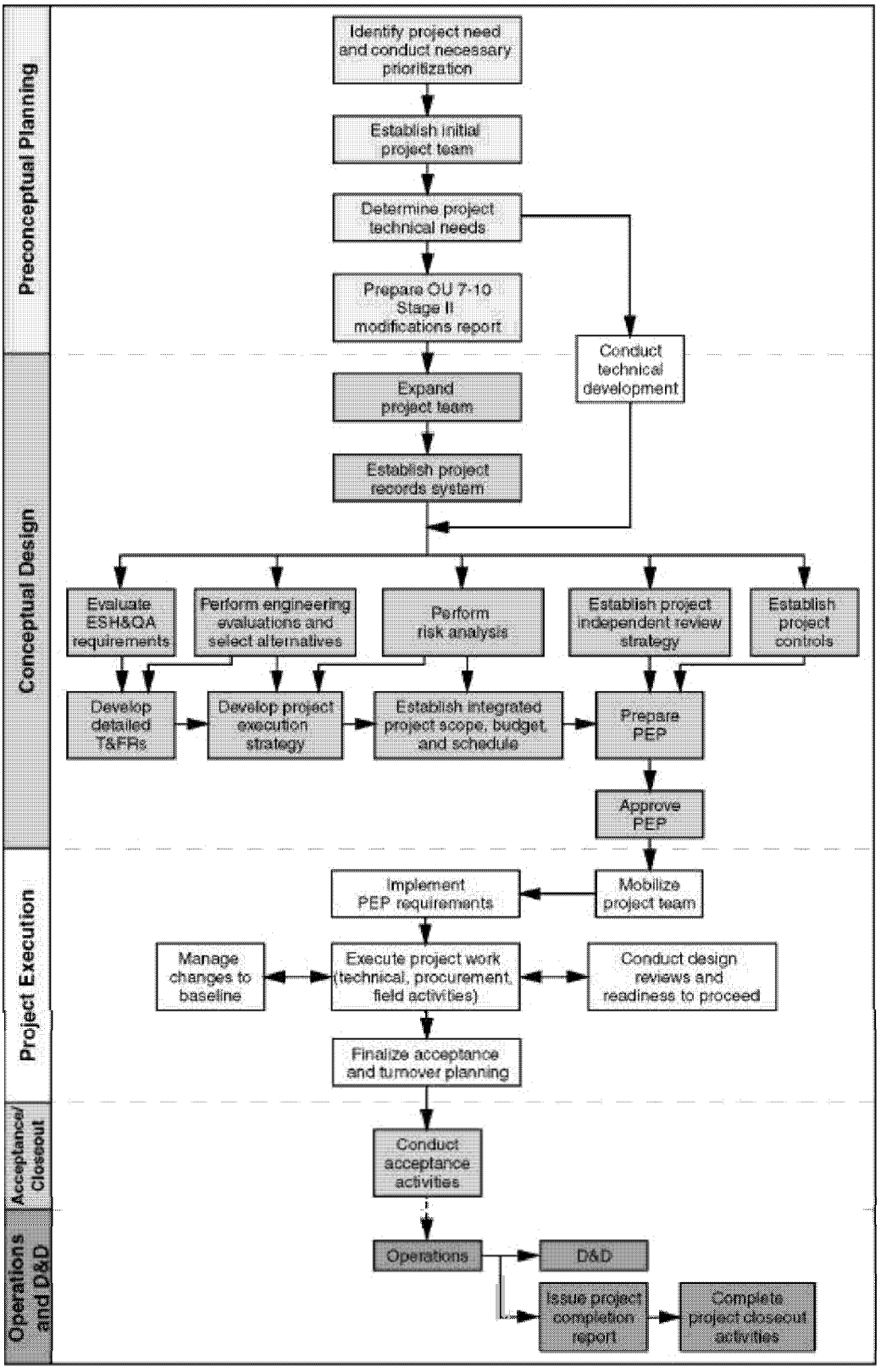

Figure 11-1. Project management integrated elements.

11.1.1 Preconceptual Planning Phase

Preconceptual planning identifies the need, justification, and priority for a project, and the initial effort to define the objectives and scope. The project is a follow-on to previous OU 7-10 projects. Document INEEL/EXT-01-01105, *Waste Area Group 7 Analysis of OU 7-10 Stage II Modifications*, was generated to evaluate various alternatives, and to recommend a follow-on OU 7-10 approach. This report forms the basis of preconceptual planning.

11.1.2 Conceptual Design Phase

Conceptual design consists of all the planning activities necessary to develop the project performance baseline (technical, budget, and schedule) and the execution strategy.

The Conceptual Design phase allows the project team to:

- Identify appropriate resources
- Develop roles, responsibilities, authorities, and accountabilities for each team member
- Define and implement project protocol/communication methods
- Develop and document the project scope and objectives
- Establish a project file and document control system per MCP-557
- Define a project file code index per GDE-51
- Perform an environmental evaluation per GDE-70, MCP-3480, and MCP-3690
- Initiate a Request for Determination of Safety Analysis Requirements per GDE-70 and Form 431.12
- Initiate a Davis-Bacon review per MCP-2874
- Determine security and safeguards requirements for the project
- Determine quality assurance requirements per MCP-540, PLN-694, and PLN-920
- Identify required project plans and their schedule for completion
- Identify and evaluate project implementation alternatives
- Perform a field/site investigation
- Develop project technical and functional requirements per MCP-9185
- Develop a project risk management strategy per GDE-70
- Identify appropriate commercial construction practices per PLN-920
- Develop a project acquisition strategy for engineering, products, and services
- Develop a configuration management strategy for structures, systems, and components

- Develop a detailed work plan for follow-on project phases
- Define project scope, budget, and schedule baselines per GDE-70 and MCP-2871
- Develop a project review strategy per MCP-9217
- Develop planning and controls per GDE-70, MCP-3416, and MCP-3805.

11.1.3 Project Execution Phase

Project execution implements the project planning effort and manages the work to produce the desired products. The following activities take place during project execution.

The project manager:

- Ensures project funding has been received and the project is authorized to proceed.
- Establishes the project location and mobilizes the project team
- Provides orientation on roles and responsibilities, and on PEP requirements.
- Implements project protocol/communication, control and reporting system, trending and change control, documentation control, and other requirements contained in the approved PEP.

The project team:

- Executes project work including design engineering, procurement, and field activities
- Determines the extent of inspection required for shop or field activities based on the project quality requirements; prepares inspection plans and performs required quality verification activities
- Identifies and manages vendor data in accordance with MCP-3573, "Vendor Data"
- Performs design verification and/or functional reviews of technical activities (design, specifications, technical reports, etc.) as required by the approved PEP
- Determines readiness to perform field work or procurement; as a minimum, develops a checklist, updates the project risk plan, and documents reviews by the project team
- Conducts procurement, installation, and other shop or field activities in accordance with approved technical documents, the PEP, and the applicable company requirements
- Evaluates each change to the approved baseline for its affect on execution strategy, cost, schedule, and technical requirements
- Uses the construction management process to identify and resolve field problems and to change/clarify subcontractor requirements per GDE-51

- Maintains a current record of actual as-built conditions on the red-line record copy of the project's drawings, specifications, and other contract documents

- Develops a final plan for acceptance testing and turnover of the project deliverables by updating the PEP or preparing a detailed turnover and acceptance plan; coordinates the performance of this step in accordance with the requirements in MCP-2869, "Construction Project Turnover and Acceptance"

- Finalizes operations planning

- Supports the DOE-ID Project Manager in conducting periodic reviews with the Acquisition Executive

- Performs technical analysis and prepares corrective action plans as necessary for significant variances to the project technical baseline as a result of design reviews, testing, and/or simulations; reports results to the DOE-ID Project Manager

- Performs design engineering

- Maintains the project technical scope, schedule, and cost based on the results of the preliminary design; and establishes these as the project Performance Baseline

- Where long-lead procurement is required, ensures that the Acquisition Plan allows a phased authorization process

- Supports the DOE-ID Project Manager in the conduct of an External Independent Review (EIR), as necessary

- Updates the PEP, scope of work, cost estimates, and schedules, and document the updates through the change control process

- Uses the PDRI process to evaluate the project's readiness to proceed to construction.

11.1.4 Acceptance/Closeout Phase

Acceptance/closeout demonstrates successful completion, formal transfer of ownership, and completion of project closeout activities. The following activities take place during the acceptance/closeout project phase.

The project team:

- Conducts acceptance activities per GDE-70, which provides guidance on acceptance and turnover execution

- Performs the necessary acceptance activities (e.g., testing, sampling, analysis, inspections, walkthroughs, demonstration, readiness reviews) in accordance with the approved acceptance and turnover plan

- Ensures all closeout activities and document updates are complete in accordance with MCP-2811, "Design Control"
- Maintains the open deficiencies/issues tracking system. Documents resolutions and corrective actions
- Obtains quality verification of project records and deliverables in accordance with the project quality plan/requirements
- Documents approval of completion of project activities and formally transfers project deliverables to the program sponsor/user
- Ensures materials and accountable property are dispositioned/ transferred per property management procedures in Manual 2, "Logistics and Property Management"
- Prepares and issues the Project Completion Report per GDE-70
- Prepares a checklist of closeout activities and develops schedule to complete. Tracks activities to completion
- Completes formal transfer of all documents, materials, equipment, manpower, and responsibilities to company organizations and program sponsor/user; obtains necessary approvals
- Supports the DOE-ID Project Manager in obtaining authorization for start of operations/project closeout.

11.2 Engineering Strategy and Process

The engineering strategy of the project is to perform design activities in a uniform and consistent manner that comply with local, state, and federal codes, standards, and laws. The engineering team uses company procedures and processes (see Table 11-1) to deliver designs and products that meet requirements, on time and within budget. Guide (GDE)-6, "Engineering Design Process Guidelines," assists engineering personnel in performing engineering activities in a cost-effective manner that reduces rework and the potential for errors. Engineers, supporting the project, employ federal and industry standards in their designs. The DOE-ID Architectural Engineering Standards is available on EDMS or directly at http://www.inel.gov/publicdocuments/doe/archeng-standards.

The Engineering Directorate provides processes, procedures, and tools for the project design engineers. This information is available on the Engineering Directorate Homepage http://engineering.inel.gov/. A summary of the data available on the Engineering Directorate homepage includes:

- Engineering References (links to the INEEL technical library, regulations, standards, etc.)
- Organization and People (list of subject-matter experts, registered professional engineers, and system engineers)
- Conduct of Engineering and Configuration Management Work Processes (list of engineering processes and links to procedures, guidelines, and forms)

Table 11-1. Engineering process roles and responsibilities matrix.

Phase	Project Manager	Project Engineer	System Engineer	Design Engineer
Preconceptual Planning	Form project team Assign Project Engineer Develop DWP Prepare Justification of Mission Need (MCP-9106) Authorize conceptual design activities			
Conceptual	Develop PEP (GDE-70 Sect. S) Complete CD-0 and CD-1 activities and approve preliminary baseline/proposed work plan (MCP-9106) Initiate Davis-Bacon review (MCP-2874) Develop a Risk Management Plan (PLN-1024) Determine appropriate commercial practices (MCP-9106 and PLN-920) Develop preliminary project acceptance and turnover (MCP-2869) Develop project cost estimate (MCP-2871, GDE-70) Develop performance measurement methods Manage changes to scope, schedule and cost (MCP-3416) Identify trends (MCP-3805) Prepare the Acquisition Plan (GDE-70) Develop Records Mgmt Plan (PLN-598)	Design management Design to cost Determine safety category using Form 414.70 & 414.02 (MCP-540) Configuration Management Plan (PLN-996) QA Plan (PLN-694) Permitting Plan Waste Management Plan Sampling and Analysis Plan Safeguards and Security Plan Assess pollution prevention opportunities (MCP-3690) Initiate the Request for Determination of Safety Analysis Requirements using Form 431.12 (GDE-70) Identify preliminary hazards using Form 430.10 (LST-99) Determine design verification method (MCP-9217) Prepare the Conceptual Design Report (CDR)	Prepare Engineering Change Form using Form 431.37 Complete a technical risk screen using Form 431.56 Identify configuration-managed SSCs (MCP-2811, App. A)	Perform value engineering to evaluate alternatives (GDE-70) Develop Task Baseline Agreements using Form 136.35 Perform design analysis (MCP-2374 using Form 431.02, EDF) Determine safeguards and security requirements (MCP-9185) Develop preliminary technical and functional requirements (MCP-9185)
Project Execution	Authorize project activities Identify applicable facility authorization agreements and permits (MCP-3567) Perform self-assessments as needed (GDE-77) Manage procurement of materials and services (MCP-592)	Determine if a Professional Engineer is required (MCP-3534) Initiate the Hazards Identification Mitigation process (MCP-2863) Prepare Inspection Plans Define supplier quality requirements and perform quality verification activities (MCP-3516, MCP-3573) Ensure configuration management (PLN-996)	Identify affected SSCs and list on the ECF Identify affected documents, drawings, database and required training on the ECF Decide if a Fire Safety Analysis or Fire Hazard **Analysis** is required (MCP-583, MCP-579 and PRD-199) incorporate information on the ECF Include the risk screen on the ECF Approve test plan and test procedures (MCP-3056)	Prepare final design (GDE-6) Arrange for surveying (MCP-3529) Coordinate mapping with the GIS database and A/E drafting Prepare final design requirements (MCP-9185, LST-99. LST-95, DOE-ID AE Standards, Idaho Code Title 54) Consider ALARA (MCP-91) Consider fire protection req (PRD-199)

Table 11-1. (continued).

Phase	Project Manager	Project Engineer	System Engineer	Design Engineer
			Review the SAR or ASA to see if it needs to be modified (MCP-2449 or MCP-2451) Identify applicable technical safety requirements (MCP-2450) Identify applicable Radiation Control requirements Add new hazards to the facility hazard list (MCP-6206) Conduct USQ (MCP-123 Form 431.19B) Conduct an environmental evaluation (MCP-3480, Env. Checklist Form 451.01) Ensure configuration controlled items are managed in the CM database (MCP-3574) Assign equipment numbers to SSCs Dedicate commercial grade items (MCP-3772)	Write a specification (MCP-9359, Guide Specs.) Schedule vendor data (MCP-3573) Prepare drawings (MCP-2377) Document design analysis using Form 431.02 (MCP-2374) Develop Test Plan and Test Procedures (MCP-3056)
Construction	Manage and resolve field problems and change/clarify subcontractor requirements (GDE-51) Update the PEP with acceptance and turnover planning or prepare a Turnover and Acceptance Plan (MCP-2869, GDE-70)	Evaluate and disposition nonconforming items using Form 431.47 (MCP-2811, MCP-538) Manage engineering changes resulting from construction changes (MCP-9106, GDE-51)	Test the final design (MCP-3056) Label equipment (STD-7006)	Make design changes (MCP-2811)
Project Acceptance/ Closeout	Conduct acceptance activities (MCP-2869) Prepare a Project Completion Report (GDE-70)	Develop a project closeout checklist (MCP-2869) Sign ECF at turnover **Ensure project records are in records management (MCP-557,** PLN-598) Verify quality records (MCP-557, PLN-598)	Ensure all documents noted on the ECF as required for turnover to operations are updated **Ensure all other documents are** up dated, **sign and closeout** the ECF. Identify Essential and Master Facility Drawings (MCP-2377) Identify vendor data necessary for O&M (MCP-3573) Ensure all master equipment data is in the Passport system (MCP-6402)	

- Project Engineering information
- Engineering Tools (links to the Engineering Change Form tracking system, CM Database, analysis software V&V library, and the vendor data system)
- Work Requests/Performance Assessments
- Directorate Administration (roles, responsibilities, accountabilities, and authorities [R2A2s], Engineering Strategic Plan, engineering interface agreements)
- Engineering ISMS-VPP Safety by Design information.

Cost and schedule estimates of design tasks will be prepared in accordance with work planning guidance and included in appropriate Baseline Change Proposals for the project. Actual performance will be tracked using earned value techniques. Trigger points for value earned on tasks will be agreed upon with Project Management.

The design engineer is responsible for designing a product that meets the technical requirements. The design control process is accomplished using MCP-2811, "Design Control" and Form 431.37, Engineering Change Form. This process is used to document a new design and modifications. Design analysis is performed and documented using MCP-2374, "Analysis and Calculations," and Form 431.02, Engineering Design File, and the optional TEM-21, "Calculation Sheet." Design requirements are prepared in accordance with MCP-9185, "Technical and Functional Requirements," and the design is verified in accordance with MCP-9217, "Design Verification."

The project engineer has overall responsibility for the technical adequacy of the project design. The project engineer, with support from the System Engineer, is responsible for determining the safety category of structures, systems, and components (SSCs) using MCP-540. The project has safety significant and consumer grade SSCs. The safety category is the major criteria for determining whether a SSC requires configuration management (see MCP-2811, Appendix A). If an SSC is identified in the PDSA, then the SSC is configuration controlled. The project engineer and the system engineer perform a technical risk screen of the engineering design using MCP-2811 and Form 431.56. The project engineer is also responsible for determining when a registered professional engineer is required to sign project design documents (see MCP-3534, "Use of Registered Professional Engineers").

The system engineer supports the project engineer and is responsible for overseeing the MCP-2811 and ECF process. The entire design is tracked until project closeout using Form 431.37.

Engineering functional management, from the Engineering Directorate, will review, as required, design documents to ensure the project is producing a design that is consistent with the Engineering Directorate's requirements.

The Engineering Directorate provides the project with engineers that are trained and qualified. Training requirements are documented in the Training Records and Information Network (TRAIN) system for the Conduct of Engineering. The R2A2s of engineering functional management are documented on the Engineering homepage: http://engineering.inel.gov/organization/R2A2Matrix.htm.

PLN-964, "Competency Commensurate with Responsibility (CCR), INEEL System Engineer" documents the System Engineer training and qualifications.

As the project design progresses from conceptual to final design, the changes will be communicated to other organizations that interface with the project. this includes project and construction management, operations, ER program management, ER records management, and procurement.

Another responsibility for design engineering includes the development of physical full-scale mockups of:

- The transfer cart and packaging glovebox system
- The confinement structure and excavator viewing windows.

Use of these mockups will provide valuable information for finalizing physical design based on real-world simulation.

Engineering products such as EDFs, specifications, plans, drawings (see Table 11-1) are required to be controlled in EDMS and are included in the Administrative Record (AR). ER Document Control will ensure engineering documents are available on EDMS and are identified in the AR. ER Document Control supports engineering by ensuring appropriate documents are reviewed in accordance with MCP-240, "ER/D&D&D Operational Review Board Process."

The engineering strategy and processes, implemented by the project, are consistent with company expectations and comply with the Conduct of Engineering procedures, guides and standards.

11.3 Acquisition Strategy and Processes

11.3.1 Purpose and Objectives

This section provides the objectives, definitions, background, and plan for acquiring goods and services for the project.

The Acquisition Strategy and Plan (PLN-1035) for the project provide the necessary guidance to acquire goods and services throughout the various project phases. The strategy to obtain goods and services meets the following general objectives:

- Satisfies project needs (technical, budget, and schedule)
- Is cost-effective and efficient (results in best value)
- Is based on understanding and management of risks
- Optimizes use of resources (internal and external)
- Follows DOE and BBWI policies and procedures.

11.3.2 Definitions

The following definitions originate from DOE Order O 413.3, "Program and Project Management for the Acquisition of Capital Assets."

Acquisition Strategy

"The acquisition strategy establishes the framework within which detailed acquisition planning and program execution are accomplished. The requirements document describes what DOE needs to buy, while the acquisition strategy describes how the Department will acquire capital assets. Once approved, it should reflect the approving authority's decisions on all major aspects of the contemplated acquisition. The acquisition strategy describes the relationships of essential program elements (e.g., management, technical, resources, testing, safety, procurement, and contracting)."

Acquisition Plan

"The Acquisition Plan provides the procurement and contracting detail for elements of a system, program, or project. The Acquisition Plan is execution oriented and provides the framework for conducting and accomplishing the procurements and includes actions from solicitation preparation through contract award administration."

11.3.3 Background

In July 2000, BBWI submitted the 90% design for the OU 7-10 Staged Interim Action Project. In July 2001, DOE requested that BBWI perform a comparison of alternative methods to accomplish the Stage II retrieval on a shorter schedule, and with reduced costs, based on simplified design and operational criteria. On October 1, 2001, BBWI submitted the *Waste Area Group 7 Analysis of OU 7-10 Stage II Modifications.* Based on its review of that report, on October 8, DOE authorized BBWI to proceed with conceptual design and preparation of other documents necessary to support a CD-1 approval to proceed with additional design engineering in January 2002.

As a result, the detailed acquisition strategies that might normally be found in a CD-0 submittal are contained instead in the October 1 report. Also, the work performed on the alternatives study was based in part on the earlier work performed by BBWI for the 90% design. Therefore, the current PEP focuses on the Acquisition Plan contained in the following section.

11.3.4 Acquisition Plan

Overview. BBWI will perform project management and related service activities, procurement, and construction management and inspection. Construction subcontractors will be used for site preparation, structural work, and mechanical/electrical/equipment installation. The acquisition plan for decontamination, decommissioning, and demolition will be determined at a later date. In addition to inclusion in this PEP, the project Acquisition Plan will be provided to DOE as a separate document for review and approval, following current DOE practices.

Project Management, Design Engineering, and Related Services. BBWI will provide project management, planning and controls, design engineering, procurement, construction management, and associated project services. BBWI will evaluate the need to utilize specialty engineering, staff augmentation, and other consultants on an as-needed basis.

Equipment. The principal equipment purchases associated with the project include the following:

- Excavator
- Gloveboxes

- Glovebox fissile monitors
- Weather enclosure structure
- Environmental enclosure steel flooring.
- Retrieval confinement structure
- HVAC equipment.

BBWI will procure the items above because the project schedule does not permit their procurement by the construction subcontractors. In the case of the environmental enclosure steel flooring, this decision will be further examined early in title design; it may be possible to assign this procurement activity to the structural subcontractor.

Because of the need to select an excavator with specific characteristics for the project need, the team will purchase this equipment on a sole-source basis. The project team intends to establish a means of engineering support from the excavator supplier, because of the need for modifications to its standard equipment.

The project team plans to include early-on engineering support within the scope of supplying the weather enclosure structure and the retrieval confine structure, to facilitate effective technical interfaces with the balance of design.

The project team expects to purchase the detectors for the drum fissile monitors on a competitive bid basis. The software associated with the system will be either purchased with the detectors, or developed by BBWI resources, since the expertise to provide that service may exist in the R&D section of the INEEL.

BBWI plans to procure most other principal equipment to perform the demonstration retrieval project on a competitive bid basis. BBWI will evaluate the advantages of including minor equipment and bulks in the scope of supply of the construction subcontractors.

Minor equipment purchases include the following:

- Fire protection equipment
- Dust control demister system
- Piping, valves, and supports
- Cable and conduit
- Electrical switchgear
- Lighting
- Steel supports for glove boxes and other equipment

- Waste carts and cart drive system
- Criticality detectors
- Closed circuit television (CCTV) cameras
- Drum bar coding equipment
- Computer equipment for data collection and management
- Architectural seals and enclosures.

BBWI plans to procure minor capital equipment on a competitive basis, unless it is obtained as part of a construction subcontract. See "Construction Subcontracts" below.

The project cost estimate is based on sample analysis being performed by onsite laboratory facilities; however, project plans to evaluate all available alternatives and select the lowest cost alternatives for this work.

The team plans to use trailers for personal ingress and egress and donning/doffing of protective clothing. Likewise, the team plans to use trailers for local toilet facilities. These modules will be procured by BBWI on a competitive bid basis, leased, or used from available supply.

Construction Subcontracts. As described in Section 11.5, the planned approach for construction is to perform the work in the following three phases:

- Site utilities and preparation – The team will competitively bid a construction subcontract to perform the earthwork and constructing utility connections from existing facilities to the demonstration facility site.
- Structural Installation – The team will competitively bid a construction subcontract to perform installation of the following: shoring box, facility floor structure, retrieval confinement structure, and weather enclosure structure.
- Mechanical/electrical/equipment installation – The team will competitively bid a construction subcontract to perform the completion of the project. This final stage of construction will involve final connection of utilities, electric power, lighting, grounding, lightning protection, ventilation (including HEPA systems), fire protection and alarm systems, excavation misting system, instrumentation, breathing air, radiological monitoring, fissile monitoring, criticality alarm system, and packaging glovebox system.

To accomplish the project schedule objectives, the team plans to complete site preparation and erection of the weather enclosure before winter of Calendar Year 2002/2003. Once that is complete, the team will provide temporary heating so internal equipment can be installed independent of weather.

Equipment purchases will be included in the construction subcontracts to the greatest extent possible. However, the following conditions apply to the major equipment that dictate supply as government-furnished equipment (GFE):

- The gloveboxes must be GFE as a long-lead item to meet schedule
- The excavator must be GFE to allow modifications and mockup to be accomplished prior to installation to meet schedule
- The fissile monitor needs to be GFE to ensure proper performance of the equipment for special conditions.

Subcontract Services. The project team expects that the drum assay services will be subcontracted, on a competitive-bid basis.

11.4 Project Procurement Strategy

The project team's strategy is to get the right materials and services to the project on schedule and within budget. The procurement strategy considers the types of actions necessary to competitively acquire materials and services throughout the various phases of the project. It includes selection of the method of acquisition, use of purchase card for low-value local items, contracts for services, and purchase orders for commercial and engineered items. The procurement office is responsible for working with project personnel to identify the best method for acquisition. Figure 11-2 illustrates the project procurement system process flow.

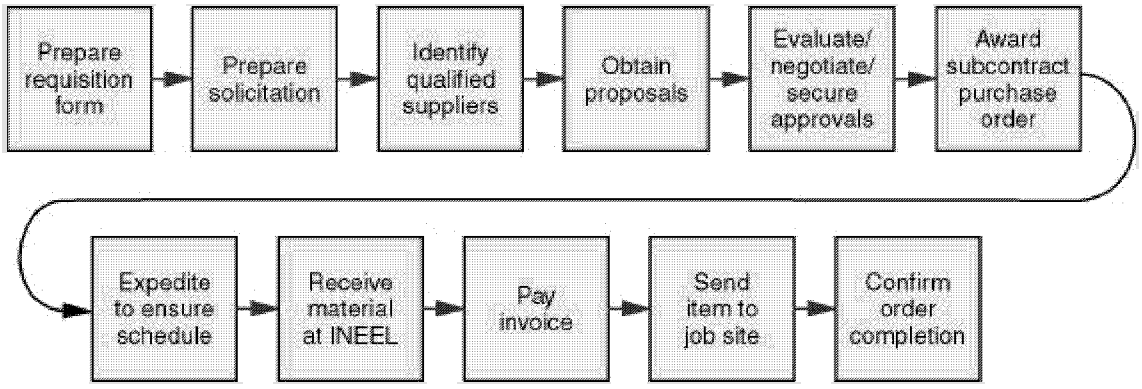

Figure 11-2. The procurement process.

Make/buy decisions, conducted in accordance with MCP-592, "Acquisition of Goods and Services," start the process. If the decision is "buy" and a specification/scope of work (SOW) is required to describe the item or service, the team prepares the SOW in accordance with MCP-9359, "Specifications and Statements of Work." The team purchases commercial items using a salient characteristics list.

The team performs planning acquisitions in accordance with MCP-3512, "Procurement Planning," as applicable.

The solicitation, evaluation, negotiation, and award of contracts and purchase orders will be performed in accordance with BBWI's DOE-approved procurement system. Source lists are developed using existing, qualified suppliers to the maximum practicable extent. If a source of supply is not readily identifiable, the Internet is used as a supplier location tool. Selection criteria are used for high-risk,

engineered items, while the lowest, responsible, responsive price received determines the supplier of commercial items.

The team anticipates that fixed price contracts can be used for the majority of items, and uses fixed unit rate contracts for services and for materials that cannot be adequately described in a specification.

If required, vendor data is processed per MCP-3573, "Validating, Controlling, Using, and Revising Vendor Data."

The team will employ field expeditors to ensure delivery of critical items and employ the assigned procurement agent for more routine type purchases.

11.5 Construction Strategy and Processes

The construction strategy and processes provide the necessary structure and approach for construction of the project. This section outlines the technology required, risk levels, subcontracts, work processes, and team member roles and responsibilities.

11.5.1 Technology Required

The project uses standard construction technology and materials. Construction is based on experience at INEEL and on lessons learned constructing similar facilities. Completion of the project does not require development of new technology.

11.5.2 Construction Risk

The project team will use standard construction techniques. The technical risk of constructing the Glovebox Excavator Method Project facilities is estimated to be low.

During construction, INEEL will have a full-time construction coordinator (CC), field engineer (FE), subcontract technical representative (STR) and several discipline-specific quality inspectors (QIs) dedicated to this project. Their responsibilities will include overseeing the construction subcontractor's quality control/inspection activities for compliance with the design and recommending acceptance or rejection of the work and equipment. While the CC, FE, STR, and inspectors will be active primarily during the construction phase, they will be involved in project planning and tracking throughout the project.

Requirements for the construction safety program are defined to the subcontractors in the contract documents, general conditions, and special conditions. This program is well established and has a good track record. Since standard construction techniques are anticipated, the risk is estimated to be low to moderate. This program is managed by the BBWI Construction Management and implemented by the CC, FE, STR, and a construction safety professional. The subcontractor is required to have a full-time safety officer on the project. During construction, weekly progress meetings will be held with the subcontractor, and safety will always be the first item on the agenda. Accident prevention will be stressed.

11.5.3 Construction Subcontracts

The Scope of Work encompassed by this project will likely be determined to be "covered" work as defined by the Davis-Bacon Act, 40 USC 276a. The project team plans to construct the project with a combination of fixed-price subcontracts and Construction Force Account Personnel under the direction of

construction management. The construction management staff will coordinate all quality and safety issues.

BBWI Procurement will administer the competitive bid process and award fixed-price contracts for subcontracted work. The procurement program controls the acquisition of items, materials, and services. Prior to awarding contracts, the project team evaluates suppliers to ensure that they are capable of providing the item, material, and or services in full compliance with the requirements of the procurement documents.

Subtier contracts are not required by for this project. Prime subcontractors will retain responsibility for management of their subtiers.

11.5.4 Work Process

Three major subcontracts are planned to complete the majority of the construction work on the project:

- Site utilities/site preparation
- Structural installation
- Mechanical/electrical/equipment installation.

Direct-hire craft personnel will perform other support and minor construction activities as required for the project. Examples of this type of work include set up and demobilization of construction trailers and fences, weed control, and other support activities not covered under the subcontracts.

Before the start of construction, the project team will establish the boundaries for the project, including access routes to and from the construction area. The team will also identify construction management, security, and any required Rad-Con facilities to support the construction activities. Emergency requirements and support requirements for subcontractors, office, and storage areas will be coordinated with operations.

Operations Interface and Construction Safety Risk factors have been evaluated in accordance with MCP-9106 to establish the level of commercial practices that would be applied to each subcontract. Additional details are provided in Section 10, Quality Assurance. Table 11-2 and Figure 11-3 provide the results of this evaluation. The minimum requirements for this project are listed below.

Three phases of construction have been identified for the Glovebox Excavator Method Project. The first phase, *Earthworks/Utilities*, includes construction of an access road and a ramp as well as providing the utility tie-ins to the construction boundary. The second phase, *Structural*, includes installation of a trench box, weather enclosure structure, and a retrieval confinement system. The third phase, *Mechanical/Electrical*, involves installation of equipment, such as a packaging glove box, and making the electrical connections to the equipment. After the last phase, the facility will be turned over to operations for system operability testing.

The project team followed the "Nine-Block" process outlined in MCP-9106, Appendix D for each of the three phases. The appropriate attributes were identified on the Operations Interface Factors Matrix and the Construction Safety Factors Matrix to determine the level of involvement or risk for each attribute. Team consensus was used to decide the overall level for each phase. The next step was to

determine the applicable block in the Commercial Practices Graded Application Matrix. Figure 11-3 provides the results of the evaluation.

Phase 1, Earthworks, was determined to have moderate risk for operations interface and low risk for construction safety. The project team determined Block 6 of the Matrix was the appropriate level for Phase 1, due to the requirement for daily work authorization, utility interfaces with RWMC and CFA, and a planned outage for the fire alarm system.

Table 11-2. Operations interface and construction safety risk levels.

Project Phase	Operations Interface	Construction Safety Level	Commercial Practices Matrix
Site Utilities/Site Prep	Moderate	Low	Block 6
Structural	Minimum	Low	Block 9
Electrical/Mechanical/ Equipment	Minimum	Low	Block 9

Operations Interface Factors		*Construction Safety Risk Factors*		
		High	**Medium**	**Low**
	Maximum	**1** • Pre Qualified Contractor • STD-101 Chapter Six • Level 2 lockout/tagout (LO/TO) Trained • Full SRM Manual • Full-time Surveillance • **Daily Authorization**, plan of the day (POD)	**2** • Pre Qualified Contractor • STD-101 Chapter Six • Level 2 LO/TO Trained • Full SRM Manual • Part-time Surveillance • Daily Authorization (POD)	**3** • Pre Qualified Contractor • STD-101 Chapter Six • Select SRM Manual • Part-time Surveillance • Daily Authorization (POD)
	Moderate	**4** • Pre Qualified Contractor • STD-101 Chapter Six • Level 2 LO/TO Trained • Full SRM Manual • Full-time Surveillance • Daily Authorization (POD)	**5** • Pre Qualified Contractor • STD-101 Chapter Six • Level 2 LO/TO Trained • Select SRM Manual • Part-time Surveillance • Daily Authorization (POD)	**6** • STD-101 chapter six • Part-time surveillance • Daily authorization (POD) • Contractors work processes approved by BBWI
	Minimum	**7** • Pre Qualified Contractor • Level 2 LO/TO Trained • Full SRM Manual • Full-time Surveillance	**8** • Select SRM Manual • Part-time Surveillance • Contractors Work Processes approved by BBWI	**9** • Part-time Surveillance • [Contractors Work Processes approved by BBWI]

Figure 11-3. Commercial Practices Graded Application Matrix (nine-block process).

Phase 2, Structural, and Phase 3, Electrical, were determined to have minimum risk for operations interface and minimum risk for construction safety. The project team determined that Block 9 of the Matrix was the appropriate level for Phase 2 and 3. The construction subcontractor will have an isolated site boundary and will operate within its own (BBWI approved) work processes. Minimal site access training will be required.

As a result of this risk evaluation, the approaches to work execution described in the following paragraphs will be applied.

Site Utilities/Site Preparation Subcontract.

1. The construction subcontractor will be prequalified by construction ES&H and procurement quality.

2. The construction subcontractor work process will be approved by BBWI, or at their option they may adopt the BBWI Subcontractors Requirements Manual. See Guide 51, Section IV.J for details.

3. All hazards will be identified for this project using the hazards identification and mitigation process.

4. The working status of this project will be presented at the facility's plan-of-the-day meetings.

5. The subcontractor will be required to prepare and work to Job Safety Analysis (JSA) for their scope of work. The principles of the Integrated Safety Management System (ISMS) will be incorporated using the JSA, or a subcontractor's mitigation plan approved by BBWI.

6. Outages will be coordinated through the STR with Operations.

7. A Project Work Order will be required for this subcontract in accordance with STD-101 Chapter 6.

8. Level 2 lockout/tagout required.

9. Full-time surveillance by construction management.

Structural Installation Subcontract.

1. The construction subcontractor will be prequalified by construction ES&H and procurement quality.

2. The construction subcontractor work process will be approved by BBWI, or at their option they may adopt the BBWI Subcontractors Requirements Manual. See Guide 51, Section IV.J for details.

3. Hazards will be identified for this project using the Hazards Identification and Mitigation process.

4. The working status of this project will be presented at the facilities plan-of-the-day meetings.

5. The subcontractor will be required to prepare and work to JSA for their scope of work. The principles of the ISMS will be incorporated using the JSA or a subcontractor's mitigation plan approved by BBWI.

6. Outages will be coordinated through the STR with Operations.

7. Level 1 lockout/tagout required.

8. Full-time surveillance by construction management.

Mechanical/Electrical/Equipment Installation Subcontract.

1. The construction Subcontractor will be prequalified by construction ES&H and procurement quality

2. The construction subcontractor work process will be approved by BBWI, or at their option they may adopt the BBWI Subcontractors Requirements Manual. See Guide 51, Section IV.J for details.

3. Hazards will be identified for this project using the Hazards Identification and Mitigation process.

4. The working status of this project will be presented at the facilities plan-of-the-day meetings.

5. The subcontractor will be required to prepare and work to a JSA for their scope of work. The principles of the ISMS will be incorporated using the JSA, or a subcontractor's mitigation plan approved by BBWI.

6. Outages will be coordinated through the STR with Operations.

7. Level 1 lockout/tagout required.

8. Full-time surveillance by construction management.

Construction subcontractor employees are required to have training and qualifications commensurate with work being performed. Replacement of key subcontractor personnel (e.g., field superintendent, safety) during a project requires notification, evaluation of qualifications, and approval by construction management. Construction subcontractors are required to ensure employees are qualified for the activity they will perform. Certified welders and journeyman crafts (e.g., electricians, carpenters, welders, fitters, ironworkers, equipment operators, and pipe fitters) are examples of construction personnel required for this project.

During construction of the project, the construction subcontractors will be required to provide logic-based schedules on a monthly basis. The schedule will include analysis sections to identify missed milestones, activities behind schedule, and design/construction concerns. The subcontractors will also be required to provide plans on how they propose to recover from each concern. Reports will be reviewed by BBWI, and negotiated with the subcontractors to produce resolutions in the best interest of the government. The subcontractor will also be required to submit a 3-week rolling schedule during project construction.

As-builts will be performed during the construction phase to ensure accurate construction documents that reflect the final configuration, where necessary.

Construction acceptance, turnover, and closeout shall be performed in accordance with MCP-2869, "Project Turnover and Acceptance." Planning for the acceptance testing, transfer, and closeout will be in accordance with GDE-51 Section IV.D, "Testing and Turnover" planning, and the turnover process shall

be as outlined in GDE-51 Section V.A, "Acceptance/Closeout Checklist." Deficiencies from project walkthroughs, construction punch lists, facility acceptance reviews, etc. shall be entered on a controlled Project Deficiency Status Report. This report can be attached to Form 432.04, "Inspection and Project Transfer" for both partial and final project transfers.

The selected construction subcontractors will have to ensure that they have the resources to complete the scope, meet the construction schedule, and ensure employees are qualified for the activity they will perform.

BBWI Engineering will provide AE support during construction. Engineering will review subcontractor submittals and shop drawings for compliance with contract documents. Proposed changes will be reviewed and dispositioned. Approved changes will be documented and controlled in accordance with approved change order procedures.

The construction management quality engineer (QE) will develop a construction quality inspection plan for all Safety Class I, II, and III construction activities to document all tests and inspections specified. During the construction phase, an independent inspector shall use the quality inspection plan to inspect the construction project. The field engineer (FE) will develop a construction quality inspection plan for all Safety Class IV construction activities. The FE or an independent inspector as outlined in the inspection plan will complete the inspections. The subcontractor will be responsible for inspecting, recording, and submitting the results through the vendor data system of all inspection required by the project.

All tests requiring verifying conformance of an item or system to specified requirements will be identified in the construction quality inspection plan or referenced in the procurement construction documents. The construction and procurement documents specify the acceptance criteria characteristics to be tested, test personnel qualifications, and test methods. The documentation of the test results and the conformance with criteria will also be defined.

The subcontractor will ensure that all calibrated equipment required for inspections is controlled, maintained, and calibrated and meet all requirements of the BBWI equipment calibration program.

11.6 Turnover and Acceptance Strategy/Processes

The project team will develop a detailed Turnover/Acceptance Plan during the planning phase of the project. The purpose is to establish a baseline for the testing, transfer, and closeout of the project to ensure that all turnover/acceptance phases are completed in accordance with requirements.

The plan will identify the turnover/acceptance activities based on the process methodology provided in Section U of GDE-70 and depicted in Figure 11-4. The team is using checklists from Section U of GDE-70 and Section V.A of GDE-51 to verify the completeness of the Turnover/Acceptance Plan.

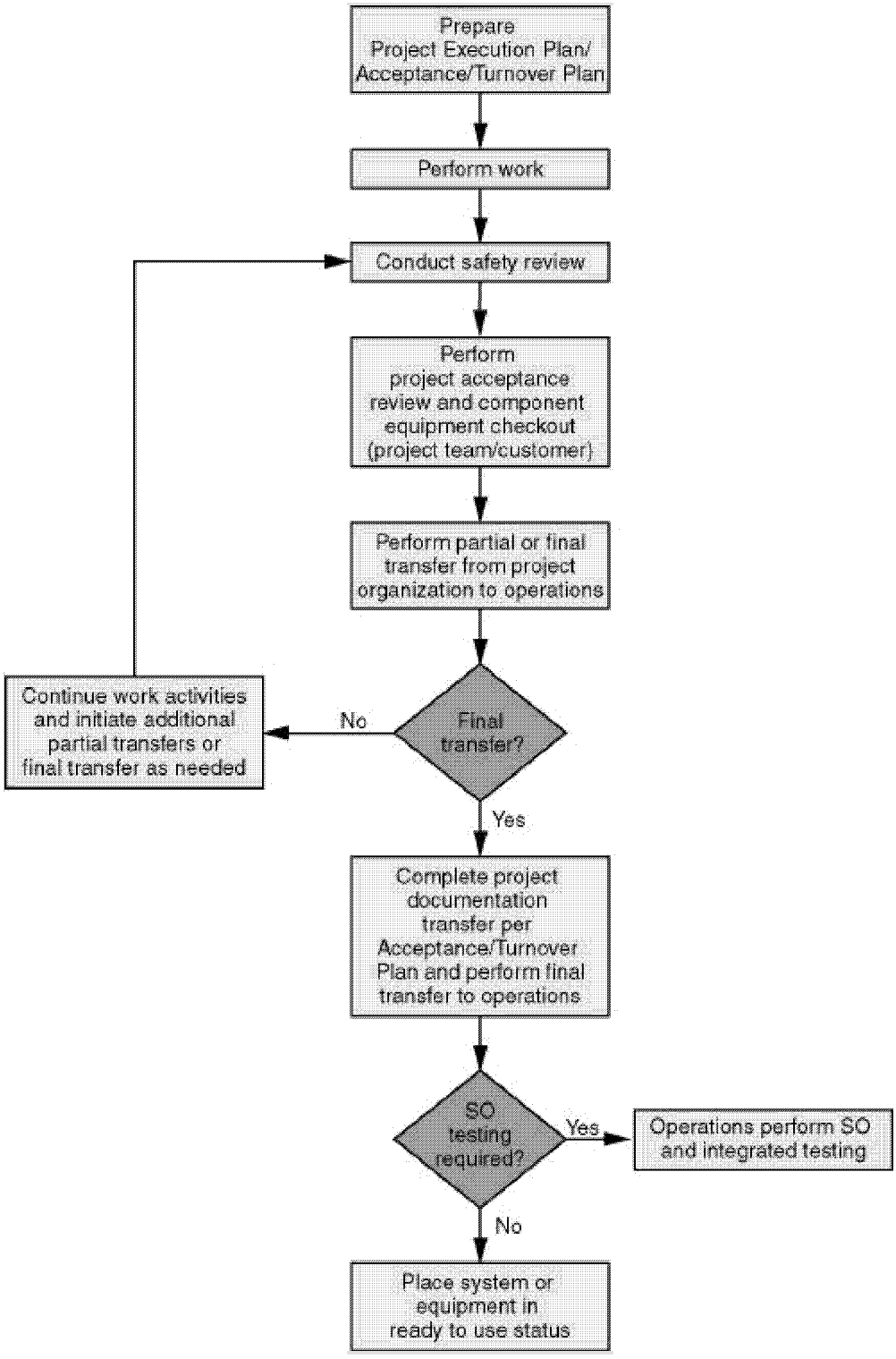

Figure 11-4. Turnover/acceptance process.

Because the facility is classified as a Nuclear Facility, the project team is ensuring that an independent operational readiness review (ORR) is conducted and approved in accordance with DOE O 425.1B. The ORR plan of action and implementation plans will identify the criteria for performing this review. Before the ORR, the project team will conduct a management self-assessment (MSA) to ensure readiness to begin operations and to identify open items for the ORR.

11.6.1 System Operability Testing

The operations team will develop and perform the system operability (SO) testing of the project facility to document that the project components and systems function as designed and according to project design requirements.

- MCP-3056, "System Operability (SO) and Integrated Tests."
- MCP-2869, "Construction Project Turnover and Acceptance."

11.6.2 As-Built and Closeout Documentation

The Turnover/Acceptance Plan will identify all closeout activities to specifically address the following actions:

- Develop a project-specific closeout checklist based on GDE-70 and GDE-51 guidance.
- Close out charge numbers as soon as each performing organizations have completed activities. The charge number for document control will be left open until every activity is completed.
- Complete vendor data equipment sheets.
- Complete photographic documentation.
- Close out project files in accordance with MCP-557, "Managing Records."

The team will identify essential as-built drawings in the Turnover/Acceptance Plan. The essential as-built drawings will be created immediately following completion of construction in accordance with MCP-2377, "Development Assessment and Maintenance of Drawings." The Turnover/Acceptance Plan will identify the required process to modify the Essential Drawing List, and/or take exception to this guidance.

The team will enter and control deficiencies from project walkthroughs, construction punch lists, SO testing, facility acceptance reviews, etc., on Form 432.68, "Project Deficiency Status Report." This report will be attached to Form 432.04, "Inspection and Project Transfer," for both partial and final transfers.

The team will complete and submit a Project Completion Report to the Project Manager. The report will be submitted within 120 days from the date of the final project transfer. An interim report may be submitted should outstanding issues prevent the Final report completion at the 120-day milestone. The final report will address the following items.

- Summary of any open items
- Technical, cost, and schedule baseline accomplishments
- Final cost report (with claims settlement strategy, where appropriate)

- Shutdown and deactivation/decontamination/decommissioning planning
- Closeout approvals
- Permits, licenses, and/or environmental documentation
- Contract closeout status
- Lessons learned
- Any adjustment to obligations and costs
- Photographic documentation
- Baseline change proposal log
- Identification of official project files.

11.7 Operations Strategy and Processes

The operational strategy and process will be for the Glovebox Excavator Method Project team to develop detailed planning to support the development of the operational requirements to ensure readiness and to operate a nonreactor nuclear facility. The purpose of phases 1 through 3b (see Section 11.7.1) will be to establish a baseline for developing facility administrative procedures, detailed operational procedures, training procedures, and training qualification criteria. The purpose of phases 4 through 6 is to develop turnover/acceptance criteria, to transfer to the system integration test phase, facility readiness assessment, and retrieval operations execution phase. To accomplish this, the project team will develop the operational strategy under established programs essential for safe operations of the facility.

11.7.1 Operations, Test, and Maintenance Strategy

The six phases for the operations, test, and maintenance strategy for the Glovebox Excavator Method facility are depicted in Figure 11-5.

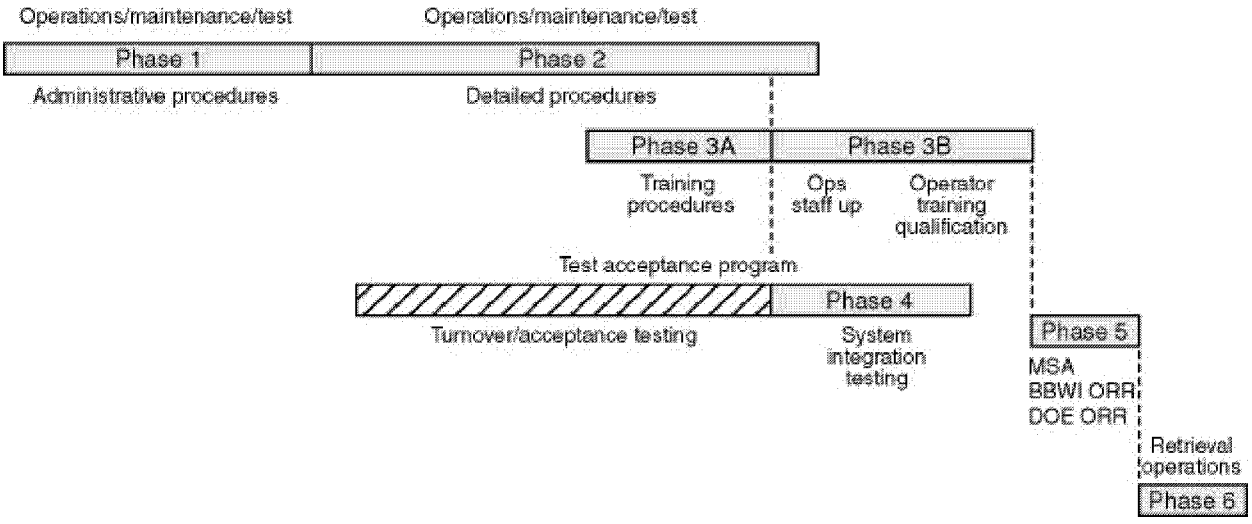

Figure 11-5. Project operations, test, and maintenance strategy.

Phase I will develop an operations and maintenance (O&M) plan as directed by the Remedial Design/Remedial Action Scope of Work (SOW). Also administrative, operations, maintenance, procedures and policies, as well as facility readiness and test plans, will be developed in accordance with applicable company procedures.

Phase 2 will develop the detailed procedures for the operation, maintenance, and testing of facility equipment and systems.

Phase 3A and 3B will develop the necessary facility training program requirements, staff the facility, and certify the facility operational staff.

Phase 4 will accept turnover of the facility from the construction. During this phase, the team will perform the integrated system testing using operational staff as part of their on-the-job training and certification process. The project operations team will also validate the detailed operation and maintenance procedures developed in Phase 2. The operations team will update and validate the system design criteria, the Final Documented Safety Analysis, and the hazards assessment before the readiness review.

Phase 5 will validate facility readiness and prefinal inspection plan through the facility management self-assessment (MSA) process. The ORR Plan of Action and implementation plans were developed in Phase 1, and the criteria developed will be used for conducting the MSA, FFA/CO prefinal inspection, and company ORR. The INEEL then will conduct an independent operational readiness review (ORR). Once all prestart and FFA/CO prefinal inspection items have been closed and verified, the project will request the performance of the DOE ORR. The updated O&M Plan will be submitted the prefinal inspection report.

Phase 6 is the retrieval operations phase. This phase will start once all DOE prestart and prefinal inspection items are closed and the project has received approval from DOE for facility startup. At the end of Phase 6, the final O&M report of Stage II will be issued, data collected, and performance evaluated.

11.7.2 Retrieval Operations Process

The retrieval operations process strategy is that once the operations have begun, they will continue nonstop, around the clock, until the retrieval of waste zone material is complete. The staff will be qualified on facility equipment and processes, emergency procedures, detail operating procedures, quality requirements, and environmental, health and safety requirements, as qualified in Phase 3B of the operational strategy. Phase 6 uses the procedures developed in Phases 1 and 2 to ensure that the necessary operational rigor and discipline is used to perform the retrieval operations safely.

The operational activities include overburden retrieval, waste zone material retrieval, sampling and handling, and facility closure activities as shown in Figure 11-6. The operations team will use a manned excavator, with only the excavator arm inside the confinement, and three gloveboxes to retrieve, sample, and package soil and waste zone material.

Facility closure will sample the underburden, decontaminate the primary confinement, return overburden to the pit, and grout the retrieval pit, and place the facility in shutdown condition.

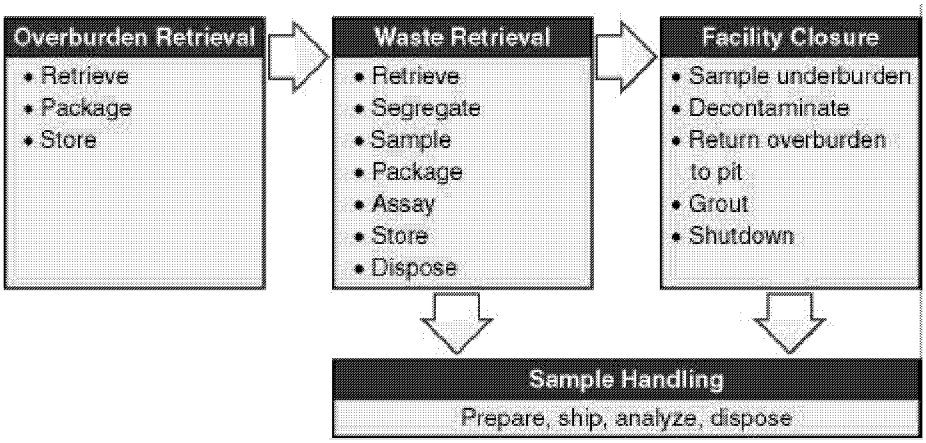

Figure 11-6. Operations process.

The project team has developed and will continue to refine a dynamic simulation process model that provides insight into the operational processes, as well as a prediction of the operational duration, based on the 24-hour per day shift plan. This information will be used to schedule facility production activities on a daily basis.

11.8 Shutdown and Closure Strategy

After the project team completes the operational phase of the project, it will turn over the facility to the INEEL Inactive Sites program for disposition. The transition phase of the facility occurs once the project team declares the facility as excess to current and future DOE needs. Facility transition and disposition activities must incorporate integrated safety management at all levels to provide cost-effective protection of workers, the public, and the environment. To accomplish this, the project team will place the facility in a stable and known configuration and facility hazards will be identified and mitigated or eliminated. Programmatic and financial responsibilities will then be transferred from the project to the Inactive Sites program. Figure 11-7 illustrates the shutdown and closure process flow.

Following operational shutdown and transition of the project facility, the Inactive Sites program's first disposition activity is to deactivate the facility. Deactivation places the facility in a safe shutdown condition that is economical to monitor and maintain until the eventual decommissioning of the facility. The project facility will have residual contamination from operations. Therefore, deactivation of the facility will occur as soon as reasonably possible. Deactivation places the facility in a low-risk state with minimum surveillance and maintenance (S&M) requirements.

The final disposition activity for the project facility is decommissioning, during which Inactive Sites program takes the facility to its ultimate end state through decontamination and dismantlement. After decommissioning is complete, the project team anticipates that the project facility will have been completely removed; however, the surrounding area may require DOE control for protection of the public and the environment (long-term stewardship) or additional environmental remediation.

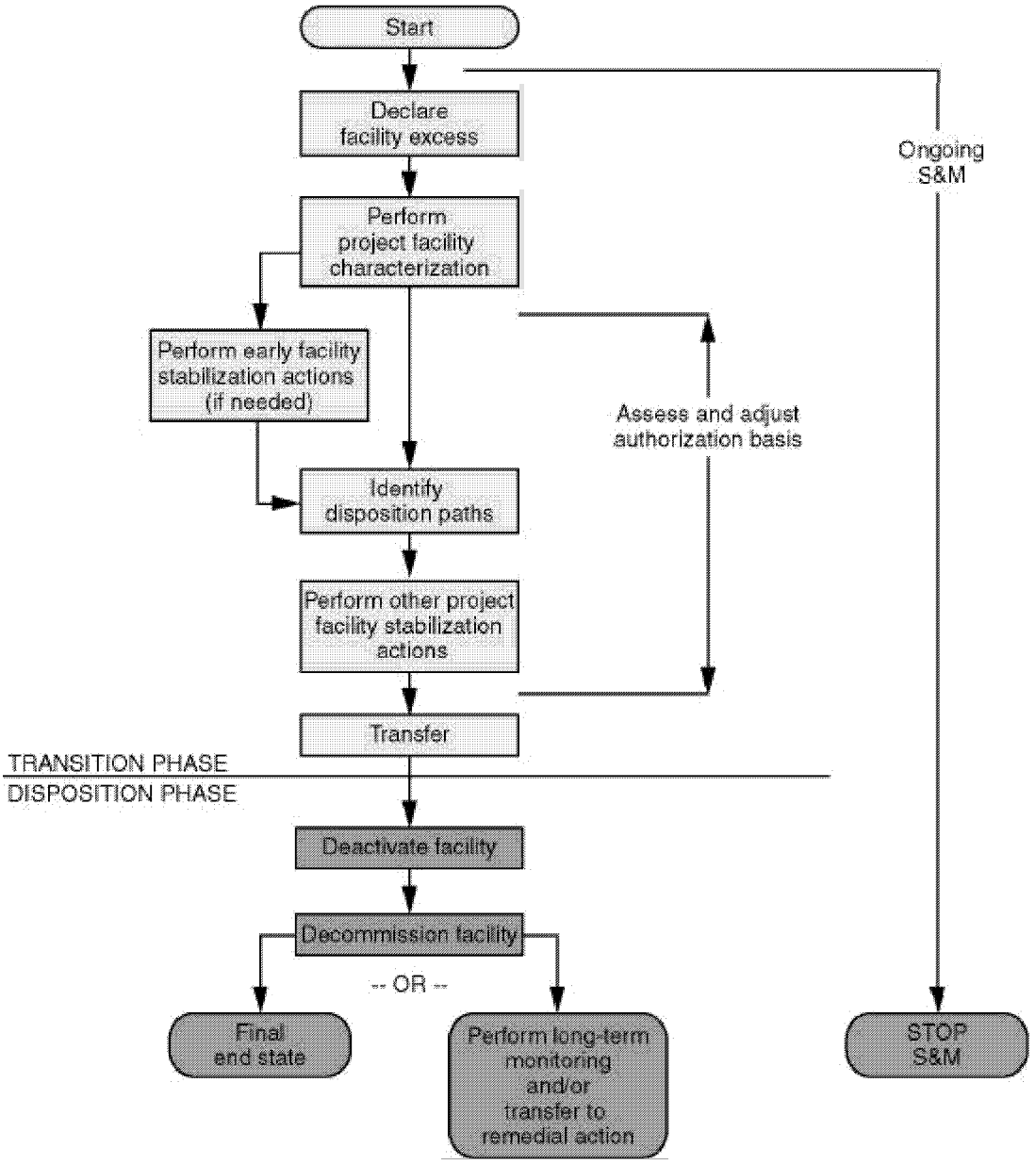

Figure 11-7. The shutdown and closure process.

Decommissioning the project facility is then performed to remove the radioactive and hazardous materials so that risk to human health and the environment is eliminated. The objectives of decommissioning planning are to:

- Maintain an integrated and seamless process linking surveillance and maintenance, deactivation, and decommissioning with the previous life-cycle phases
- Manage the risks posed by the facility (e.g., radioactive and hazardous materials, mechanical hazards)

- Minimize the amount of waste zone material generated and the generation of waste zone materials requiring special treatment (e.g., TRU waste and mixed waste).

- Minimize the decommissioning costs.

Both the risks and final goal of decommissioning should be identified. Radioactive and hazardous materials remaining in the facility will be identified through process knowledge or sampling and analysis. After the facility has been characterized, the project team has identified one or more of the following endpoints as the final goal of decommissioning:

- Storage—the facility is placed in a condition that allows it to be safely stored and subsequently decontaminated to levels that permit release for unrestricted use. The facility will need to be surveilled and maintained to prevent release of contaminants.

- Decontaminated—the facility is dismantled and decontaminated to a level that permits the property to be released for unrestricted use. Secondary waste will be generated and require management.

- Disposed—the facility is dismantled, packaged, transported, and disposed at appropriate facilities. Waste zone materials will be segregated and disposal volume will be minimized.

Implementation of the decommissioning phase of the project facility will depend on many factors such as the material inventory remaining in the facility equipment at shutdown and the nature of the materials, the ease in which the material inventory can be removed, the ease in which internal and external equipment surfaces can be decontaminated, equipment accessibility, and modularity of the equipment and facility.

Historically, DOE has mandated that nuclear facilities and non-nuclear facilities that handle radioactive materials be designed considering end-state decontamination and decommissioning. This design criterion has been implemented on a graded basis and rests on the professional judgment of the facility designers and engineers. A good facility design considers the needs of the decommissioning phase of a project and obtains multi-disciplinary input early and often through value engineering and design level reviews. The primary benefits resulting from good design for decommissioning is reduced worker hazards and reduced overall project cost. Overall project cost is reduced through less generation of waste zone material, more efficient management of waste zone material; reduced worker exposure to radiation and radioactive and hazardous materials, and simpler work processes.

Typical examples of good engineering and design practice that may be used during the design of the project include:

- Planning for proposed decommissioning method or a conversion method leading to other uses

- Including features that will facilitate decontamination for future decommissioning, increase the potential for other uses, or both

- Sizing and arrangement of interior corridors to accommodate decontamination and decommissioning of the facility, including equipment required during decontamination

- Using modular, separable confinements for radioactive and other hazardous materials to preclude contamination of fixed portions of the structure

- Locating exhaust filtration components of the ventilation systems at or near individual enclosures so as to minimize long runs of internally contaminated ductwork
- Designing gloveboxes for easy clean-out
- Provide adequate lighting
- Using materials that reduce the amount of radioactive and other hazardous materials requiring disposal and that are easily decontaminated
- Implementing designs that ease cut-up, dismantlement, removal and packaging of contaminated equipment from the facility (e.g., removal and dismantlement of gloveboxes, air filtration equipment, vessels, equipment and ductwork)
- Using modular radiation shielding, in lieu of or in addition to monolithic shielding walls
- Using lifting lugs on large tanks and equipment.

11.9 References

MCP references are generic in nature in CD-1. In the execution phase we will only call out MCPs and MCP sections that are applicable to the project.

DOE G 430.1-2, "Implementation Guide for Surveillance and Maintenance During Facility Transition and Disposition."

DOE G 430.1-3, "Deactivation Implementation Guide."

DOE G 430.1-4, "Decommissioning Implementation Guide."

DOE G 430.1-5, "Transition Implementation Guide."

DOE O 413.3, "Program and Project Management for the Acquisition of Capital Assets."

DOE O 425.1B, "Startup and Restart of Nuclear Facilities."

DOE O 430.1A, "Life Cycle Asset Management."

DOE O 435.1, "Radioactive Waste Management."

DOE O 5480.9a, "Construction Safety and Health Program."

DOE/ID, 2000, *Quality Assurance Project Plan for Waste Area Groups 1, 2, 3, 4, 5, 6, 7, 10, and Inactive Sites,* DOE/ID-10587.

DOE-ID Architectural Engineering Standards, http://www.inel.gov/publicdocuments/doe/archeng-standards.

FWD-6, Calibration Services Policy Statement.

GDE-6, "Engineering Design Process Guidelines.

GDE-51, "Construction Project Management Guide, for Construction Projects."

GDE-51, Section IV.D, "Testing and Turnover."

GDE-51, Section IV.J, "Subcontractors Requirements Manual."

GDE-70, "General Project Management Methods."

IAG-6, "Interface Agreement Between Decontamination & Decommissioning (D&D) and RWMC."

INEEL, 2001, Waste Area Group 7 Analysis of OU 7-10 Stage II Modifications, INEEL/EXT-01-01105.

LST-95, "Reference Design Codes and Standards."

MCP-8, "Self-Assessment Process for Continuous Improvement."

MCP-14, "Graded Approach to Project Control."

MCP-33, "Personnel Qualification and Certification."

MCP-35, "Job Analysis."

MCP-41, "Conducting Asset Physical Condition Assessments."

MCP-123, "Unreviewed Safety Questions."

MCP-135, "Creating, Modifying, and Canceling Procedures and Other DMCS-Controlled Documents."

MCP-190, "Event Investigation and Occurrence Reporting."

MCP-192, "Lessons Learned System."

MCP-240, "ER/D&D&D Operational Review Board Process."

MCP-538, "Control of Nonconforming Items."

MCP-540, "Documenting the Safety Category of Structures, Systems and Components."

MCP-557, "Managing Records."

MCP-579, "Performing Fire Hazards Analysis."

MCP-583, "Performing Fire Safety Assessments & Annual Fire Assessments."

MCP-589, "Quality Assurance Surveillance."

MCP-590, "Flow-down of Standard Procurement Quality Requirements."

MCP-592, "Acquisition of Goods and Services."

MCP-2374, "Analysis and Calculations."

MCP-2377, "Development, Assessment, and Maintenance of Drawings."

MCP-2391, "Calibration Program."

MCP-2463, "Receipt of INEEL/Government Property."

MCP-2464, "Storing Government Property."

MCP-2466, "Control of BBWI/Government Property."

MCP-2467, "Issue and Return of Material."

MCP-2489, "Supplier Surveillance."

MCP-2492, "Standard & Calibration Laboratories (S&CL) Operations."

MCP-2493, "Standard & Calibration Laboratories (S&CL) Status Labels and Seals."

MCP-2795, "Master Equipment List."

MCP-2797, "Maintenance Calibration Program."

MCP-2801, "Maintenance Resource Forecasting and Scheduling."

MCP-2802, "Measurement, Analysis, and Reporting of Maintenance Performance."

MCP-2804, "Maintenance Tool and Equipment Control."

MCP-2807, "Winterization and Freeze Protection."

MCP-2811, "Design Control."

MCP-2860, "Building/Facility Turnover."

MCP-2863, "Construction Work Coordination and Hazard Control."

MCP-2869, "Construction Project Turnover and Acceptance."

MCP-2871, "Estimating Project Costs."

MCP-2874, "Davis-Bacon Applicability Review Process."

MCP-2973, "Chapter I – Operations Organization and Administration."

MCP-2974, "Chapter II – Shift Routines and Operating Practices."

MCP-2975, "Chapter III – Control Area Activities."

MCP-2976, "Chapter IV – Operations Communications."

MCP-2977, "Chapter V – Control of On-Shift Training."

MCP-2978, "Chapter VIII – Control of Equipment and System Status."

MCP-2979, "Chapter X – Independent Verification."

MCP-2980, "Chapter XI – Logkeeping."

MCP-2981, "Chapter XII – Operations Turnover."

MCP-2982, "Chapter XIII – Aspects of Facility Chemistry and Unique Processes."

MCP-2983, "Chapter XIV – Required Reading."

MCP-2984, "Chapter XV – Timely Orders to Operators."

MCP-2985, "Chapter XVI – Operations Procedures."

MCP-2986, "Chapter XVII – Operator Aids."

MCP-2987, "Chapter XVIII – Equipment and Piping Labeling."

MCP-3003, "Performing Pre-Job Briefings and Post-Job Reviews."

MCP-3056, "Test Control."

MCP-3416, "Baseline Change Control."

MCP-3480, "Environmental Instructions For Facilities, Processes, Materials And Equipment."

MCP-3491, "Acceptance of Procured Items and Services."

MCP-3512, "Procurement Planning."

MCP-3521, "Trending Center."

MCP-3529, "Surveying."

MCP-3534, "Use of Registered Professional Engineers."

MCP-3562, "Hazard Identification, Analysis, and Control of Operational Activities."

MCP-3567, "Authorization Agreement with Authorization Basis List."

MCP-3573, "Validating, Controlling, Using, and Revising Vendor Data."

MCP-3650, "Chapter IX Level I Lockouts and Tagouts."

MCP-3651, "Chapter IX Level II Lockouts and Tagouts."

MCP-3690, "Pollution Prevention Opportunity Assessments."

MCP-3772, "Dedication and Equivalency Evaluation of Commercial Grade Items."

MCP-3805, "Trend Identification, Monitoring, and Analysis Program."

MCP-6206, "Maintenance and Use of the Facility Hazards List."

MCP-6402, "Master Equipment List and Maintenance History."

MCP-9106, "Management of INEEL Projects."

MCP-9185, "Technical and Functional Requirements."

MCP-9217, "Design Verification."

MCP-9359, "Specifications and Statements of Work."

PDD-1, "Quality Assurance Program Description."

PDD-13, "Conduct of Training."

PDD-16, "Overview of the LMITCO Safety and Health Program."

PDD-20, "Maintenance Management Program."

PDD-60, "Conduct of Operations."

PDD-1003, "Waste Generator Services Program."

PDD-1004, "INEEL Integrated Safety Management System."

PDD-1005, "Site Operations Manual."

PDD-1007, "Issues Management Program Description."

PDD-1011, "Facility Excellence Program."

PDD-1013, "Chemical Management Program."

Peterson, D. A., 2001, Deactivation, Decontamination, and Decommissioning Project Manager's Handbook, INEL-94/0229, Rev. 4, Idaho National Engineering and Environmental Laboratory, Bechtel BWXT, LLC, Idaho Falls, Idaho.

PLN-598, "Records Management Plan For the OU 7-10 GEM Project."

PLN-694, "Environmental Restoration Project Management Plan, for Environmental Restoration (ER) and Decontamination and Decommissioning (D&D) Projects."

PLN-783, "Project Execution Plan for Inactive Sites."

PLN-920, "Construction Management Quality Program Plan."

PLN-964, "Competency Commensurate with Responsibility (CCR), INEEL System Engineer."

PLN-996, "Configuration Management Plan for the OU 7-10 Glovebox Excavator Method Project."

PLN-1035, "Acquisition Plan for the OU 7-10 Glovebox Excavator Method Project," Rev. 0, Idaho National Engineering and Environmental Laboratory, Bechtel BWXT Idaho, LLC, Idaho Falls, Idaho, January 2002.

PRD-4, "INEEL Project Management System Requirements."

PRD-25, "Activity Level Hazard Identification, Analysis, and Control."

PRD-101, "Requirements Document for Lockheed Martin Idaho Technologies Company Quality Assurance Program."

PRD-112, "Criticality Safety Program Requirements Manual."

PRD-113, "Unreviewed Safety Questions."

PRD-115, "Configuration Management."

PRD-160, "Hoisting and Rigging."

PRD-165, "Safeguards and Security Program."

PRD-177, "Maintenance Management Program Requirements."

PRD-183, "INEEL Radiological Control Manual."

PRD-185, "Conduct of Operations."

PRD-199, "INEEL Fire Protection Program."

PRD-5042, "Facility Hazard Identification."

PRD-5051, "Chapter IX – Lockout and Tagout."

STD-13, "Configuration Management Plans."

STD-101, "Integrated Work Control Process."

STD-107, "Configuration Management Program."

TEM-21, "Calculation Sheet."